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**Application for Letters Patent
of the United States**

INVENTOR: CHARLES HILLEL ROSENDORF

**TITLE OF
INVENTION:** SECURITIES ANALYSIS METHOD AND SYSTEM

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1 SECURITIES ANALYSIS METHOD AND SYSTEM
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6 FIELD OF THE INVENTION.
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11
12 The present invention relates to a system and method for analysis of
13 data with reference to a benchmark data point. The present invention is
14 particularly suited for analyzing the performance of securities, such as stocks,
15 mutual funds or the like over a period of time.
16
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19

20
21 BACKGROUND OF THE INVENTION.
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23
24

25 In U.S. Pat. No. 3,270,190 Lambert discloses a securities evaluator
26 which is mechanically programmed with ten years of data for securities. Based
27 on a formula to fit the data of prior years, the inventor claims the high and low
28 stock price for the coming year can be determined from the estimated range of
29 variables input by the user for the coming year. The evaluator has no means of
30 having the financial data contained therein automatically updated.
31

32 In U.S. Pat. No. 5,414,838 Kolton et al. disclose a system for
33 extracting historical market information with condition and attributed windows.
34 The system includes facilities for including domain knowledge in a query, such
35 as market knowledge of calendar events, holidays, triple-witching hours and
36 option expiration dates. Additional facilities enable the user to include dates
37 of political elections, date of issuance and value of company earning reports and
38 the like in the query. The dates from which a user can choose to extract
39 historical information are determined by the system, and unlike the present
40 invention, do not offer the user the ability to randomly choose time points
41 between data points chosen by the user.
42

43 Chennault (U.S. Pat. No. 5,930,774) discloses a method and computer
44 program for evaluating mutual fund portfolios to enable an investor to determine
45 the diversity, or lack thereof, of at least two mutual funds. The invention
46 determines whether the funds are really different from each other, or if the
47 funds include similar positions or securities in different market sectors, such
48

1 as, for example, consumer goods, energy or pharmaceuticals, determines just how
2 different these funds actually are from one another.
3

4 U.S. Pat. No. 5,946,666 (Nevo et al.) discloses a system for the
5 simultaneous monitoring and subsequent analysis of financial securities to
6 provide a basis for future investment or divestiture. The system analyzes data
7 taken from time periods such as seconds, minutes, hours, or days to longer
8 periods of a year or more.
9

10 The Nevo et al. system appears to limit the number of securities to
11 be displayed at any particular time to three (3), in contrast to the present
12 invention which can analyze and display data from up to several dozen securities.
13 Nevo et al. do not explicitly explain how the sampling period is modified,
14 whereas the present invention includes a number of different ways of determining
15 the sampling period, ranging from fixed periods of time to random time periods.
16
17

18 Black et al. (U.S. Pat. No. 6,012,042) discloses a data conversion
19 device for converting both technical and fundamental data about a security into
20 a unified format for analysis by an analysis process engine. The invention
21 creates records for each calendar day, by the steps of deleting a plurality of
22 technical data records from a multiplicity of technical data records, and
23 inserting a fundamental data value into the multiplicity of records, in order to
24 correct for "nil" values that would occur when no data is available for a
25 particular security at a particular date. The analysis process engine processes
26 the disparate data according to a set of rules, and the results are forwarded to
27 a display for viewing or used for further analysis.
28

29 The present invention permits a user to compare up to 126 securities
30 simultaneously. The present invention offers the user an option to choose any
31 start and end date (as opposed to a preset default sampling period), and the
32 ability to randomly choose additional dates to use during the comparison process.
33 Further, the present invention enables the user to compare the performance of
34 multiple types of securities, such as equities and mutual funds, simultaneously.
35
36

1 BRIEF SUMMARY OF THE INVENTION.
2

3 An object of the present invention is to provide a system that can
4 analyze the performance of a financial vehicle using realtime data.
5

6 Another object of the present invention is to provide an analysis
7 system that can analyze the performance of a financial vehicle over a period of
8 time.
9

10 Another object of the present invention is to provide an analysis
11 system that can analyze the performance of a financial vehicle over a randomly
12 determined time period.
13

14 Yet another object of the present invention is to provide an analysis
15 system that is platform independent and that can be used on a variety of devices.
16

17 Still another object of the present invention is to provide an
18 analysis system that can track the performance of numerous financial vehicles
19 simultaneously.
20

21 Another object of the present invention is to provide a securities
22 analysis system whose data can be output in a variety of manners, such as
23 graphically, tabularly, or electronically in a format such as a spreadsheet.
24

25 Still another object of the present invention is to provide a
26 securities analysis system whose compared data can be exported into a downstream
27 analytical tool, such as a second financial analysis program.
28

29 Another object of the present invention is to provide a method to
30 analyze the performance of a financial vehicle using realtime data.
31

32 Still another object of the present invention is to provide a method
33 to analyze the performance of a financial vehicle over a period of time.
34

35 Another object of the present invention is to provide a method to
36 analyze the performance of a financial vehicle over a randomly determined time

1 period.

2
3 Yet another object of the present invention is to provide a method
4 of analysis that is platform independent and that can be practiced using a
5 variety of devices.

6
7 Still another object of the present invention is to provide a method
8 of analysis that can track the performance of numerous financial vehicles
9 simultaneously.

10
11 Another object of the present invention is to provide a method of
12 analysis in which data can be output in a variety of manners, such as
13 graphically, tabularly, or electronically in a format such as a spreadsheet.

14
15 Still another object of the present invention is to provide a method
16 of analysis in which the analyzed data can be exported into a second analytical
17 tool, such as a financial analysis program.

18
19 The present invention permits a user to compare a number of financial
20 vehicles simultaneously. In an embodiment of the present invention, the user can
21 analyze the data for up to 126 financial vehicles simultaneously. A significant
22 feature of the present invention is the option available to a user to choose any
23 start and end date and time for performing the analysis (as opposed to a preset
24 default sampling period). The present invention enables a user to compare the
25 performance of multiple securities simultaneously.

26
27 The present invention is a system for analyzing financial data
28 comprising a computer having a communication means for obtaining one or more
29 points of data related to a security; means for storing the obtained data in a
30 memory; a means for obtaining a second point of data related to the security and
31 a means for storing the second data point in the memory; a means for comparing
32 the data from the obtained data points with the data of an additional data point
33 related to the security, the additional data point being randomly chosen from
34 between the obtained data points; and a display means to display the analyzed
35 data. The data points between which the analysis is made can also be randomly
36 chosen. The system orders the randomly chosen data points prior to comparing the

1 data, which is displayed in a format such as a table, exported spreadsheet format
2 file, or graph. The compared data can be exported to a method of analyzing
3 financial data. Using the present invention, an individual can track a
4 securities portfolio, monitor its performance and make investment decisions based
5 on performance.

6

7

8 BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING.

9

10 FIG. 1A illustrates the system of the present invention.

11

12 FIG. 1B illustrates system components.

13

14 FIG. 2A is a flow chart summarizing the method of the present
15 invention.

16

17 FIG. 2B summarizes functions of the present invention.

18

19 FIG. 3 summarizes the analysis functions of the present invention.

20

21 FIG. 4 summarizes the single date analysis function.

22

23 FIG. 5 summarizes the import functions.

24

25

26 DETAILED DESCRIPTION OF THE INVENTION.

27

28 As used within the context of the present specification, the term
29 "security" is intended to encompass various financial vehicles, including stocks
30 (equities), bonds (all types, including corporate, government, municipal, high
31 yield, so called "junk bonds", and the like), mutual funds, commodities, options
32 (puts and calls), derivatives, and various indices and benchmarks used by the
33 financial industry. The terms "security" or "securities" and "financial vehicle"
34 will be used interchangeably in the present specification. Among these indices
35 and benchmarks are such indices as the Dow Jones Industrial Index ("DJIA"), the
36 Standard and Poors 500 Index ("S&P500"), the Russell 2000, and the like, which

1 are intended as examples only and not intended to be any limitation.
2

3 In securities and other analyses, a data point is commonly referenced
4 by the date and/or time corresponding to such data point; however, there need not
5 be such limitations. Thus, throughout this specification, a data point is
6 sometimes referred to by the corresponding date/time and sometimes as merely a
7 "point".
8

9 The present invention is designed for use on a computer system. The
10 computer system may be an individual personal computer, a computer network, or
11 a portable computer or similar handheld device, such as a pocket computer
12 marketed by companies such as Compaq or Hewlett-Packard. The present invention
13 is capable of use on devices which include a software program comprising an
14 emulator for the Disk Operating System ("DOS"), such as the product sold under
15 the tradename Microsoft DOS (TM).
16

17 Referring to Figs. 1A and 1B, the system 10 of the present invention
18 employs a computer 12 equipped with a microprocessor 14, random access memory 16,
19 read-only memory 18, a mass-storage device 20 such as a hard disk, and a
20 communications means 22 to enable the computer 12 to communicate with output
21 devices such as a printer 24.
22

23 The communications means 22 may comprise a printer interface, which
24 may be either a parallel interface or a serial interface, and appropriate cabling
25 to the printer. A second communications means 22a may comprise a modem and
26 serial port or SCSI (or SCSII) or Universal Serial Bus ("USB") interface enabling
27 the computer 12 to communicate with communications network 32, such as a public
28 telephone net, the Internet, an extranet, the world wide web or other wired or
29 wireless communications system. Such communications means 22 may also comprise
30 a cable modem and a connection to a cable service, an ISDN modem and ISDN line,
31 a Digital Subscriber Line ("DSL") modem and DSL line, T-1 line, and the like.
32 The system further includes an input means such as keyboard 26, a mouse 28, or
33 similar device such as a Touch-Pad or pointing device such as the ACCUPOINT
34 (Registered Trademark of Toshiba America Information Systems, Inc. for a cursor
35 control device for computers, attached to the computer keyboard), or scanner (not
36 shown), and a visual display means 30 such as a cathode ray tube (CRT) monitor

1 or video display terminal, a dual-scan monitor, thin-film transistor, active-
2 matrix monitor, electronic glasses, or their equivalents. Software 33 which is
3 resident in the computer's memory, or which may be stored in the memory of
4 another computer such as a server in a computer network or other central computer
5 includes the operating system necessary for operation of the computer. Among the
6 possible operating systems are Macintosh Operating System, or for IBM-compatible
7 computers, operating systems such as Windows 3.1x, Windows 95, 98, Millennium,
8 NT or 2000, or UNIX or LINUX operating systems. In an embodiment of the present
9 invention, the system is designed for operation under the WINDOWS (Trademark of
10 Microsoft Corp., Redmond, WA) operating system.

11
12 The present invention can process real-time data provided by a third
13 party data provider 40. FIG. 1A shows the third party data provider 40 as a
14 stand-alone computer; however, it is to be understood that third party data
15 provider 40 can be a central computer such as a mainframe, minicomputer, or other
16 such combinations comprising storage media and computer systems known to those
17 skilled in the art, using as examples only, providers such as Dow-Jones Inc., or
18 LEXIS-NEXIS. The present invention can also process financial data that has been
19 stored, whether on a computer of the user, or stored by another computer system
20 and which is in communication with the computer system of the user. In one
21 embodiment of the present invention, data provided by the third party data
22 provider 40 is transmitted to computer 12 by a communications means such as a
23 high speed data network.

24
25 The output of the financial data can be displayed graphically or in
26 the form of a table or spreadsheet on an associated computer screen. Data can
27 also be saved to a means of mass storage, such as a floppy diskette, hard drive,
28 compact disk, digital versatile disk, memory stick and the like. The output can
29 also be directed to a printer, and a hard copy obtained.

30
31 The method 100 of the present invention is used in the following
32 manner (FIGs. 2A-3). At step 102 the program is loaded into memory of the user's
33 computer system. Either historical data (H4) 212 or daily data (CH) 214 is
34 obtained at step 104 from a third party provider 40, and entered into the
35 databases. Historical data 212 is stored in a first database 213 and daily data
36 214 is stored in a second database 215 (at step 106). During the import step

1 106, the symbols 204 for the securities are imported from the data provider.
2 After the symbols have been imported, the user can choose whether to modify the
3 names of the imported symbols 204. The user determines which security or
4 securities whose performance is to be monitored (step 108). The choice of
5 security is entirely up to the user. At step 110 the user selects those symbols
6 204 from the databases corresponding to the desired security or securities. The
7 user has an option to manually create a different symbol 204 for a security if
8 the user so desires, such as, for example only, to give one security two
9 different symbols for different tracking purposes. At 112 the user selects those
10 names 240, if any, that have been imported for the security or securities.
11 Because sometimes the names given by the data provider may or may not be suitable
12 for the user's purposes, the user has an option to manually create a different
13 name for a security. Another reason for the user changing a name is, for example
14 only, to give one security two different names and symbols for different tracking
15 purposes.

16
17 The symbols 204 and/or names 240 can be sorted (step 114) in either
18 alphanumeric symbol order or Ascii name order, enabling the user to view them in
19 an ordered manner. Symbols and names representing different type of securities,
20 such as stocks and mutual funds, can be sorted further into groupings such as
21 securities and mutual funds, or types of securities, such as, for example only,
22 consumer goods, energy or pharmaceuticals. This step can be bypassed at the
23 user's discretion.

24
25 The financial data for the selected securities is analyzed using the
26 Comparison function 202 at either of steps 116, 118 or 120, and the user can
27 choose from one or more comparison functions at steps 116a-d. All of these
28 comparison results can be viewed on a video display (step 122), or printed as
29 either a hard copy of the display, or in the format of a report (steps 122-124)
30 for future reference.

31
32 Referring to FIG. 3, a Sequential comparison, using the "With FROM"
33 analysis is employed at step 116a, comparing the percent change in the price of
34 the security over the chosen time period, with the oldest date being defined at
35 the 0.0% change basis.

36

1 A Sequential comparison (116b), using the "With TO" analysis compares
2 the percent change in the price of the security over the chosen time period, with
3 the newest date being defined at the 0.0% change basis.

5 A Sequential comparison (116c), using the "Until TO" analysis
6 compares the percent change in the price of the security over the chosen time
7 period, with the oldest date being defined at the 0.0% change basis. This
8 function enables the user to see how each newer Time relates to the Time before
9 it until the newest time.

10 A Sequential comparison (116d), using the "Until FROM" analysis
11 compares the percent change in the price of the security over the chosen time
12 period, with the newest date being defined at the 0.0% change basis.

15 Step 118 employs the "Random" comparison using the same analyses as
16 in 116a-d, using the parameters described above. The "Random" method is defined
17 as choosing dates and times without use of an arithmetical pattern between them;
18 arithmetical patterns are the approach used in the prior art.

20 A Single Date Comparison Function 270 (step 120) comprises two
21 functions, a single day function 272 and a single date function 274. Single date
22 function 274 compares financial data on any date and hour with financial data on
23 any later date and time; all intervening data points are omitted from the
24 comparison. Single day function 272 compares financial data on any date and time
25 with the corresponding financial data on that same day but with a different time;
26 any intervening data points are omitted from the comparison.

28 Once the securities' data has been compared using one of the above
29 comparisons, the compared data can be displayed on a video display terminal 30
30 (step 122), and viewed as a table (122a), a spreadsheet format file (122b) or a
31 graph (122c). The displayed data from step 122 can be printed (124), exported
32 (126) to another financial analysis program if the user wishes to analyze the
33 compared data further in another spreadsheet. The displayed data may also be
34 stored as a data file (step 128). At chosen intervals (step 130), data changes
35 are entered into the Process Log 332.

1 The user can make a determination as to a course of action to take,
2 if any, regarding any of the securities after any of steps 116-122. This
3 determination is solely at the option of the user, and will be described further
4 in the sections below. The elements of the present invention will be described
5 in greater detail in the following sections.

6

7 Features of the Present Invention

8

9 Each function described below can be implemented and programmed by
10 those individuals skilled in the relevant art.

11

12 **Comparison Function**

13 The Comparison Function 202 ("Compare") is a major element of the
14 present invention, which allows for the simultaneous performance comparisons of
15 securities data.

16

17 The Comparison Function 202 allows the user to choose from an almost
18 unlimited list of imported symbols 204 and simultaneously compare up-to-the-
19 second performance for any dozens of symbols 204 during any calendar period. All
20 of these comparison results can be output as a report 206 for future reference.
21 In one embodiment of the invention, the Comparison Function 202 can be initiated
22 by pressing a specific function key on a keyboard, such as the F6 key.

23

24 The computer program of the present invention has a size that is less
25 than 4 megabytes, exclusive of securities data. The program of the present
26 invention and its associated data are designed to reside entirely on the user's
27 computer 12. By being resident on the user's computer, this functionality
28 eliminates downtime that can occur while waiting to receive data from another
29 source, such as through an Internet connection, or by delays of time sensitive
30 results that may occur using a shared server.

31

32 The present invention includes an import feature 210, in which
33 financial securities data can be obtained from one or more third-party data
34 providers 40, such as directly from, for example only and not intended to be any
35 limitation, the Dow-Jones Publishing Company (Princeton, NJ), Standard and Poors
36 (New York, NY), or Moody's Analytical Services (New York, NY). The user has the

1 ability to import the following:

2
3 a. the historic data 212 ("Historic-H4") for the desired security
4 or securities for any desired calendar length of time. This step is usually
5 performed when first beginning the analysis of a particular security. In an
6 embodiment of the present invention, historic data 212 represents either the
7 closing average price of the security (as NAV), or the Adjusted Net Asset Value
8 ("ANAV") for a security such as a mutual fund, at 4:00 PM.

9
10 b. the daily data 214 "(Daily-CH") for the desired security or
11 securities. This step is generally done for only one day at a time, and that day
12 is generally "today", i.e., the data for the date on which the importation is
13 being performed. The user has a choice of using entirely historical data 212,
14 for that security, entirely daily data 214, or a merge of both types of data.
15 In addition, daily data 214 may be accumulated into a history of days. In an
16 embodiment of the present invention, the daily data 214 is the current price of
17 the security at a given hour, which does not necessarily have to be 4:00 PM. For
18 securities such as mutual funds which are priced using the Net Asset Value
19 ("NAV") method, the daily data 214 of such a fund is expressed as the NAV.

20
21 c. a merge 216 of both the historic 212 and daily 214 data for the
22 given security or securities.

23
24 The Comparison function 202 is employed to compare the performance
25 of symbols using any of the above data combinations. A user can employ the
26 Comparison Function 202 to compare just historic data 212, just daily data 214
27 or combinations thereof, depending the user's needs.

28
29 The data format of the present invention accommodates realtime data
30 generated 24 hours a day when a data snapshot is taken and assigned to any of the
31 7 hourly breakpoints.

32
33 The user can determine the freshness of the data in the databases
34 based on the data date-range shown and the breakpoints for the newest date of
35 both databases. By entering a date of interest as a "TOPoint" (see Examples
36 below), data availability can be verified by the breakpoints automatically

1 selected by the software.

2
3 As the updated data is received from the third party provider 40,
4 data from the imported symbols and their corresponding data is merged into the
5 databases 213 and 215.
6

7 Because the present invention employs a comparison of changing data
8 with a benchmark data point, it is suitable for uses other than strictly for
9 securities analysis. Thus, up-to-the-moment global/regional performance
10 monitoring of stock market equities, indices, sales, government and/or corporate
11 budgets, inventory control, or scientific applications such as environmental
12 monitoring, process monitoring and the like can also be performed using the
13 present invention. Sales, budgets, cost data, inventory data, margin data,
14 earnings data, income tax data, depreciation data, and amortization data can also
15 be compared using the present invention. Even non-financial comparisons can be
16 made using the present invention.
17
18

19 **Import Function**

20 The Import Function 210 of the present invention is a non-proprietary
21 open import program 210 which enables a data file to be imported into the
22 databases when that data conforms to either of the standard formats employed by
23 the present invention (the historic-H4 212 or daily-CH 214 data formats). Data
24 can be obtained from numerous third party data providers 40.
25

26 To facilitate the user's learning of the present invention, the
27 present invention includes Historic-H4 file specifications 232 and daily-CH file
28 specifications 234 and sample data files 236 for emulation.
29

30 A user can employ the standard symbols for financial securities
31 provided them by the data provider. Alternatively, the user can employ functions
32 of the present invention such that the user can: in the historic-H4 212 and
33 daily-CH 214 data, manually create or change names 240 for a security; in the
34 daily-CH 214 data, manually create symbols 204; in the daily-CH 214, manually
35 create or edit data.
36

1 **View Master Function**

2 The View Master Function **238**, which can also be called the Create
3 Favorite Names Function **238**, allows a user to let a security's name remain the
4 same as it was when it was downloaded from the third party provider **40** or create
5 a name **240** to always be associated with any symbol **204**. By assigning a prefix
6 character to a names **240**, groups **244** and sub-groups **246** of symbols can be user
7 defined, e.g., "C BIOTECH".

9 A sort feature **248** enables the user to sort the symbol **204**/name **240**
10 lists by either symbol **204** or name **240** in ASCII order. In an embodiment of the
11 present invention, the View Master Function **238** is actuated by depressing a
12 combination of the Control and V keys (Ctrl+V) simultaneously.

14 **Date-Range Copy or Delete Function**

15 The Date-Range Copy or Delete Function **250** enables the user to Copy
16 **252** or delete **254** a symbol's data for any period of time. In an embodiment of
17 the present invention, the Date-Range Copy or Delete Function **250** is actuated by
18 depressing a combination of the Control and B keys (Ctrl+B) simultaneously. Once
19 the function has been actuated, menus appear allowing the user to choose the date
20 range from which to choose data, and a choice of whether to copy **252** the data to
21 another part of the database, or to delete **254** the data from the database. The
22 Date-Range Copy Function **252** can be applied to data in daily CH **215** database.
23 The Delete Function **254** can be applied to data in both the historical H4 **213** and
24 daily CH **215** databases. Existing historical H4 data **214** is automatically deleted
25 during the import function, which updates the database.

27 **Comparison Function**

28 The Comparison Function **202** enables the user to compare security data
29 over time in any way the user may choose. In an embodiment of the present
30 invention, this function is initiated by striking the F6 function key of a
31 keyboard. Financial data can be analyzed over a period of time either
32 sequentially, randomly, or comparing one day's data with that of just another
33 single date. The user can choose a data snapshot taken at one of the hourly
34 breakpoints, for example, between 10am-4pm, as part of the FROM and TO Points
35 employed in this comparison feature.

1 In an embodiment of the present invention, the use of the Comparison
2 Function is seen on a video display terminal as:

3

4	<- Older/Newer -->
5	FROM ----- Middle dates/chosen hours ----- TO
6	Date/Hour Date/Hour
7	

8 where the FROM section represents the older date while the TO section would
9 represent the newer data.

10

11 The present invention emphasizes present securities data and future
12 perspectives. The present invention is primarily concerned with the most recent
13 financial data (today) and what might happen in the future, taking both short
14 term (tomorrow) and longer term perspectives.

15

16 Some examples of how the calculation of the comparison function 202
17 express this relationship are illustrated below. As indicated below, the
18 reference data points and the chosen data points can vary.

19

20 **Example 1a. SEQUENTIAL Dates/Chosen Hours (10am-4pm)**

21 **Example 1a1. With FROM**

22 This function enables the user to compare financial data at any FROM
23 point (date and hour) with all newer data (Middle dates and hours) and stop at
24 any newest TO date and hour. This comparison can be expressed mathematically by
25 the equation where:

26

$$27 ((TOPoint-FROMPoint)/FROMPoint)*100 = +/- \%,$$

28

29 wherein the financial data at the FROM date is subtracted from corresponding
30 financial data at the TO point, and converted into a percentage change ("%)
31 compared to the FROM point.

32

33 An example of this function, showing how each newer time relates to
34 the oldest time is shown below in Table 1:

35

36 In this example, BIOTECH refers to an exemplary financial security

1 in the Biotechnology field, and is shown for purposes of example only.
2
3

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1 **Table 1. Comparison Using "With FROM" Point**

2	BIOTECH			
3	Hour	Date	\$ Price	% Change
4	4 PM	10/08/2000	37.31	0.00
5	4 PM	10/09/2000	36.78	-1.42
6	4 PM	10/10/2000	36.50	-2.17
7	4 PM	10/11/2000	35.96	-3.62
8	4 PM	10/12/2000	31.60	-15.30

9
10 As can be seen from this Table, the comparison function is an
11 iterative process, where after a first comparison is made using the data from the
12 first two dates in the group, each additional dates' data are compared with that
13 of the first, or "FROM Point", until the data from all of the data points has
14 been compared. In this instance, the "FROM Point" is the reference data point,
15 and all other dates are chosen data points.

16
17 As seen in this example, the security showed a loss of over 15% in
18 a week's time period. For example only, if the user has rules wherein the user
19 will sell a security after a certain percentage loss, for example, a loss of
20 greater than 10%, such a change as shown above would tell the user to sell that
21 security. If the user's rule is to sell when the security had incurred a 20%
22 loss, this comparison would suggest to that user that the security is losing
23 value, and to be prepared to sell shortly.

24
25 **Example 1a2. With TO**

26 This comparison function enables the user to compare financial data
27 at any TO point (date and hour) with each older (Middle date and hour) data point
28 and stop at any older (FROM) date and hour. This comparison can be expressed
29 mathematically by the equation where:

30
31 $(TOPoint - FROMPoint) / FROMPoint * 100 = +/- \%$

32
33 wherein the financial data at the FROM point is subtracted from corresponding
34 financial data at the TO point, and converted into a percentage change ("%)
35 compared to the FROM point. As shown in Table 2 below, data for the newest Time
36 (probably today) relates to each older Time.

Table 2. Comparison Using "With TO" Point

BIOTECH

Time	Date	Price	% Change
4 PM	10/08/2000	37.31	-15.30
4 PM	10/09/2000	36.78	-14.08
4 PM	10/10/2000	36.50	-13.42
4 PM	10/11/2000	35.96	-12.12
4 PM	10/12/2000	31.60	0.00

Example 1a3. Until TO.

This function enables the user to compare financial data at any FROM point (date and hour) with a next chosen hour for all Middle dates and hours and stop at any TO date and hour. This comparison can be expressed mathematically by the equation where:

((TOPoint-FROMPoint)/FROMPoint*100 = +/- %

As shown in Table 3 below, starting at the oldest Time, one can see how each newer Time relates to the Time before it until the newest Time.

Table. 3. Comparison Using "Until TO" Point

BIOTECH

Hour	Date	\$ Price	% Change
4 PM	10/08/2000	37.31	0.00
4 PM	10/09/2000	36.78	-1.42
4 PM	10/10/2000	36.50	-0.76
4 PM	10/11/2000	35.96	-1.48
4 PM	10/12/2000	31.60	-12.12

Example 1a4. Until FROM

This function enables the user to compare financial data at any TO point (date and hour) with prior chosen hours for all Middle dates and hours and stop at any older FROM date and hour. This comparison can be expressed mathematically by the equation where:

((FROMPoint-TOPoint)/TOPoint)*100 = +/- %

1 wherein the financial data at the TO point is subtracted from corresponding
2 financial data at the FROM point, and converted into a percentage change ("%)
3 compared to the TO point. As shown in the example below, data for the newest
4 Time (probably today) relates to each older Time.

5
6 Table 4 shows how each Time relates to the Time after it until the
7 oldest Time.
8

9 **Table 4. Comparison Using "Until FROM" Point**

10	Hour	Date	\$ Price	BIOTECH % Change
11	4 PM	10/08/2000	37.31	1.44
12	4 PM	10/09/2000	36.78	0.77
13	4 PM	10/10/2000	36.50	1.50
14	4 PM	10/11/2000	35.96	13.80
15	4 PM	10/12/2000	31.60	0.00

16
17
18 As seen in Table 4, the greatest percentage change in the value of
19 the security occurred in the previous day, with the other previous days showing
20 only minor percentage losses in the security's value.
21

22 Comparisons of data can be performed using data from one or both of
23 the databases, and can be facilitated through the use of keystroke combinations.
24

25 In an embodiment of the present invention, a comparison using just
26 historic data 214 is represented by the keystroke combination of (a) F9-
27 ANAV+H4TODCH=OFF.
28

29 F9 represents a particular function key which is programmed to call
30 up data from the historical H4 database 213, in which database the security value
31 is represented as the Adjusted Net Asset Value ("ANAV") if the security is a
32 mutual fund, or the Net Asset Value ("NAV") if the security is not a mutual fund,
33 such as equities, indices and the like. The keystroke combination H4TODCH=OFF
34 affects H4 (historical, 4 PM) symbol selection. When ON, the most recent
35 comparison point (TO Point) is a Current Hourly (CH) database 214 date, and all
36 prior dates are H4 212 database dates. When OFF, all dates are H4 database 212

1 data dates.

2
3 The comparison for symbols using just daily-CH data is represented
4 by the keystroke combination (b) F8-NAV+H4TODCH = ON or OFF.

5
6 F8 represents a particular function key which is programmed to call
7 up data from the current hourly CH database 215, in which database the security
8 value is represented as the Net Asset Value ("NAV"), and H4TODCH=ON or OFF
9 represents that the "TOPoint" employing current hourly data 214 has either been
10 turned on or off.

11
12 Combination (c) is a comparison of Symbols 204 using just historic-H4
13 and/or just daily-CH data is represented by the keystroke combination (c) F9-
14 ANAV+H4TODCH=OFF and/or F8-NAV.

15
16 The comparison of symbols 204 using merged historic-H4 and daily-CH
17 data together is represented by the keystroke combination (d) F9-ANAV+H4TODCH=ON.

18
19 The comparison of symbols 204 using merged historic-H4 and daily-CH
20 data together combined with symbols using just daily-CH data is represented by
21 the keystroke combination (e) F9-ANAV+H4TODCH=ON and F8-NAV.

22
23 In use, formulae (d) and (e) enable the user to do the following on
24 a daily basis: First, data is imported from third party provider 40, to update
25 the historic data database 213. This update step 104 collects all data through
26 late on the previous day of trading; this will generally be late yesterday for
27 a user who employs the present invention on a daily basis. For using formulas
28 (a), (b), (c), (d) and (e), the user can obtain current (generally today's)
29 current data 214, using a communications means 22, such as a realtime narrowband
30 modem or wireless communications means, updating daily database 215 with data
31 from up to 7 hourly breakpoints, generally over the time period from 10 AM-4 PM.

32
33 Example 1b. RANDOM DATES ("R Dates")

34 The Random Dates Function 260 combines all of the features of the
35 present invention described in Examples 1a1 through 1a4, but instead of including
36 every Middle date and data in the analysis, enables the user to include up to 15

1 random dates. The dates are chosen by the user, in any random order desired by
2 the user. The FROM and TO Points can also be randomly chosen by the user. A
3 date checking function 264 compares each random date chosen to determine whether
4 the chosen date is a weekend date, or a date for which data could have been
5 available. If the date is verified, the date is entered. Once all of the dates
6 have been verified and entered, the present invention performs the comparison
7 functions chosen by the user. These mathematical calculations are identical to
8 those of Examples 1a1 through 1a3, but the random dates financial data are
9 substituted appropriately. When the data from the random data comparisons are
10 displayed, the random dates chosen are displayed in chronological order.

11

12 **Example 1c. SINGLE Date ("S-Date")**

13 Single date function 270 function compares financial data on any FROM
14 Date/any hour with any later TO Date/any hour. All in between Dates/Hours are
15 omitted in this function.

16

17 **Compare Results Function**

18 The Compare Results function 300 enables the user to view the results
19 of the various comparisons described in the comparison section in a format that
20 best suits the user's needs, such as in a table 302, spreadsheet 304 or a graph.
21 In an embodiment of the present invention, the graph is a 3-Dimensional ("3-D")
22 graph 308.

23

24 Also included in any of the output forms displayed (on the video
25 display terminal 30) are the total number of symbols 204 for which financial data
26 was available, and the number of symbols whose financial data was chosen and the
27 number of symbols whose financial data was calculated. This indicates whether
28 the data output represents data from all or a part of the securities being
29 followed by the user.

30

31 **Example 2a. TABLE function 302:**

32 As shown below, the financial data is displayed in the form of a
33 Table, in which financial data for those symbols 204 with sufficient data are
34 calculated. In cases where a focal date (such as FROM or TO Point) is missing,
35 an error message is displayed, and is noted in the Process Log 332. In cases
36 where certain financial data is missing, the missing price data is marked 'na'

1 ("not available") in the Table. As shown below, the output lists symbols 204 and
2 points vertically, and this is similar whether the user selects the screen
3 display mode (default mode) or selects to have the table printed.

4

	\$ Price	% Change	Symbol a	Name a
7 Point 1	\$	%		
8 Point 2	\$	%		
9 Point(n)	\$	%		
10			Symbol b	Name b
11 Point 1	\$	%		
12 Point 2	\$	%		
13 Point(n)	\$	%		
14			Symbol(n)	Name(n)
15 Point(n)	\$	%		
16				
17				
18 Example 2b. SPREADSHEET function 304:				

19 As shown below, the financial data is exported in the form of a
20 spreadsheet file 304, and the financial data for those symbols 204 with
21 sufficient data are calculated. Where certain financial data is missing, that
22 point in the spreadsheet remains blank so that the data remains compatible with
23 downstream analytical tools. The symbols 204 and names 240 can be output as a
24 printed report 206 enabling the user to identify which symbols correspond to data
25 in the cells of the spreadsheet. The spreadsheet data can be exported for use
26 in other analytical programs, in formats such as .xls (Microsoft Excel), .wkl
27 (Lotus 123), .dbf (dBase format), .sdf, and ASCII. The .sdf file format is
28 System Data Format, which is defined as an ASCII text file in which records have
29 a fixed length and end with a carriage return and line feed; fields are not
30 delimited (Microsoft FoxPro Language Reference, published by Microsoft Corp.,
31 Redmond, WA, 1993).

32
33 The spreadsheet export function 306 lists symbols, prices (Symbol+8)
34 and performances (Symbol+9) horizontally and points vertically, enabling an
35 endless banner print output where appropriate.

36

1 The format of a representative spreadsheet 304 is illustrated below:
2

	Symbol8A	Symbol9A	Symbol8B	Symbol9B	Symbol(n)8	Symbol(n)9
Point1	\$	%	\$	%	\$	%
Point2	\$	%	\$	%	\$	%
Point(n)	\$	%	\$	%	\$	%

8 **Example 2c. Graph Function 308:**

9 Although not shown below, the financial data can also be displayed
10 in the form of a Graph 308. The financial data for those symbols 204 with
11 sufficient data are calculated. Where certain financial data is missing, that
12 point remains blank on the graph for visual clarity. The symbols 204 and names
13 240 can be output as a printed report 206 enabling the user to identify which
14 symbols correspond to which graphical data. The graph function 308 displays the
15 graph on a video display monitor 30 as a 3-dimensional color graph, and has the
16 capability to adjust the scale of the graph to fit the particular display
17 (autoscale function 310). The axes of the graph are:

19 X Axis = Up to 126 symbols.
20 Y Axis = Percent changes.
21 Z Axis = Times.

23 In an embodiment of the present invention, each symbol is associated
24 with a distinct color for data that is above or beneath the Y-axis' zero plane.
25 Generally, the Y-axis zero plane is black. The graphing function enables a graph
26 to be rotated or have its orientation shifted. In such instances where negative
27 data is presented, such negative data can be observed by the user upon changing
28 the orientation of the graph. The graphing function includes a means for
29 displaying a gap to indicate where data was not available for calculation, either
30 because of a gap in the database, or no data was available prior to the date of
31 issuance of a recently issued security. The graph generates a datafile
32 "color.dbf" which can be used by third-party graphing engines.

34 **Archive/Restore Function**

35 The Archive/Restore function 312 allows the user either to archive
36 data 314 to or retrieve 316 data from the database. This function is used when,

1 for example, (a) the user has more data stored than necessary for the user's
2 tasks, or (b) to improve the performance of the program by reducing the size of
3 bulky files. In an embodiment of the present invention, this function is
4 activated by pressing a combination of keys, such as the Control ("Ctrl") and the
5 "R" key (Ctrl+R). The user can then select either the Archive function 314 or
6 the Restore function 316, select which data is to be archived, or to be restored
7 into a current analysis. The database includes an entire or partial date-range
8 of historic data 212 and/or daily data 214 databases and all symbols 204 and
9 names 240. The Archive/Restore function 312 also includes an Erase option 318,
10 allowing the user to erase stored date-ranges. Data files are stored with file
11 overwrite protection 320, using methods of overwrite protection known to those
12 skilled in the art.

13

14 When the Archive/Restore function 312 is used with the Erase
15 Databases 322 function, the combination allows any list of symbols 204 and names
16 240 and their data to be swapped out and replaced with a different list of
17 symbols and/or names and their data, such that a user can monitor, for example,
18 sales data, by replacing Stock Market Equities with Sales data. Once the
19 appropriate Sales data, or other data is entered, or imported from other sources,
20 or both, the present invention enables the user to employ the present invention
21 as a means of analyzing its sales figures, or other functions which vary and
22 which can be compared with a benchmark or standard point of reference, such as
23 income, bank account balance, net worth and the like.

24

25 **Merge Function**

26 A Merge function 324 enables the symbol 204 and name 240 lists, with
27 or without their data, to be merged and/or to be automatically sorted by criteria
28 chosen by the user, such as alphabetical, numerical, etc..

29

30 **Sort Function**

31 The Sort function 248 enables the historic data 212 and daily data
32 214 to be viewed, combined with, and sorted by symbol, date or name, in
33 alphabetical, numerical, or other order as desired by the user. Using the Sort
34 function 248, a user can view the combined historic data 212 and daily data 214
35 for any one or more individual symbols 204. The Sort results can be viewed on
36 a video display terminal 30, or exported in formats such as .xls, .wk1, .dbf,

1 .sdf, and ASCII. In an embodiment of the present invention, the Sort function
2 248 is activated by depressing a combination of keys, Control and V
3 simultaneously (Ctrl-V).

4

5 Import Functions

6 The present invention enables the user to import data from third
7 party providers 40 as the user desires by manually activating import default 326.
8 This invention looks up the file path and file name that have been user-chosen
9 and stored. It next imports the data by using the combination of System
10 Defaults-F7 326. The user then chooses between a Manual Import Function 328 and
11 an Auto Import Scheduler Function 330. The Manual Import Function 328 is
12 activated manually by the F5 function key.

13

14 In an embodiment of the present invention, the Scheduler Function 330
15 is actuated by depressing a combination of the Control and S keys (Ctrl+S)
16 simultaneously, upon which a menu is presented allowing the user to turn this
17 function on, the type of data to be imported, the frequency, and the time
18 scheduled for the data to be imported. The data can also be imported over a
19 network, such as a LAN or WAN, if the user's system is a part of such a network,
20 or via other communications means, whether wired or wireless. By using the
21 Scheduler function, the present invention will be ready with updated data for the
22 user to employ in comparing securities information.

23

24 Erase Database Function

25 The Erase Database Function 322 enables the user to erase the entire
26 historic data database 213 and/or the current hourly data database 215 with
27 Symbols-Names and/or Process Log 332. In an embodiment of the present invention,
28 the Erase Database 322 function is actuated by simultaneously depressing the
29 Control and E keys (Ctrl+E) on the keyboard.

30

31 Using the Erase Database function 322 the user can strip the program
32 down to its database engine; the entire database is erased. The Erase Database
33 322 function also enables the user to remove data that may have been corrupted,
34 such as by power failures, surges and the like.

35

36 The Erase Database 322 function can also be used with the

1 Archive/Restore 312 function described above. When these two functions are used
2 in combination, this combination enables the user to swap symbols and data as has
3 been described.

4

5 **Process Log Function**

6 The Process Log Function 332 is a recording or tracking function that
7 records all Import, Comparison Failures, Archive/Restore and Erased Database
8 events in a Process Log database 334. The Process Log database 334 is accessible
9 to and employed by the user to monitor changes in the master database of the
10 present invention. The Process Log Function 332 is useful for monitoring data
11 transfers that may have occurred, and for symbol comparison failures. In an
12 embodiment of the present invention, the Process Log 332 Function is actuated by
13 simultaneously depressing the Control and L keys (Ctrl+L).

14

15 In an embodiment of the present invention, the Process Log Function
16 332 is on. During a Comparison Function 202, the user will see color-coded
17 flashing messages on the video display terminal 30 indicating those symbols 204
18 whose data was not calculated because of missing FROM or TO data. In an
19 embodiment of the present invention, a yellow flashing message indicates that the
20 FROM data of a security was not calculated, while a green flashing message
21 indicates that the TO data of a security was not calculated. The colors of the
22 flashing messages can be varied by methods known to those skilled in the art.

23

24 The Process Log database 334 log created can be: viewed on the video
25 display terminal 30; printed; or date-range deleted.

26

27 **Other Utilities**

28 The present invention includes a Help file and a Glossary file. The
29 Help file describes the various functions of the program, while the Glossary file
30 defines the terminology employed by the present invention. The content of both
31 the Help and Glossary files are expressly herein incorporated by reference.

32

33 **OPERATING SYSTEM COMPATIBILITY**

34 a. **Microsoft (R) WINDOWS (TM) Attributes:**

35 The present invention is designed to be cross-platform transportable.
36 In an embodiment of the present invention, it is written in a relational database

1 tool that is compatible with the Disk Operating System ("DOS"), such as in FOXPRO
2 (TM, owned by the Microsoft Company, Redmond, WA), making it cross-platform
3 transportable.

4

5 **b. Windowing Functions**

6 The present invention includes a windowing function 336 in which the
7 invention can be operated in either a Microsoft WINDOWS (TM) environment, or in
8 DOS mode, on a video display terminal 30. When the present invention is
9 operating in a WINDOWS (TM) environment, the DOS window can be reduced to a small
10 size on the screen (a "DOS box"), such that a fully functional screen of the
11 present invention can have a size ranging from being barely larger than that of
12 a simple icon seen in a WINDOWS (TM) or enlarged to any font size. This
13 windowing functionality allows the present invention (called Wave-runner (TM))
14 to be displayed and working side-by-side with other launched programs in the
15 WINDOWS (TM) environment. The elements of the windowing function 336 are
16 conventional, as is known to those skilled in the art, and will not be further
17 discussed.

18

19 **c. Compatibility with handheld and pocket devices:**

20 The present invention uses a utility function 338 called XT-CE
21 (pronounced ecstacy) which is a DOS environment emulation program, and is
22 obtained from a third party supplier for devices compatible with the Microsoft
23 CE (TM, registered trademark of Microsoft Corp., Redmond, WA) operating system.
24 This utility enables handheld devices that operate using the Microsoft Pocket CE
25 (TM) operating system to run the present invention. This utility is available
26 from Microsoft Corp. at the company's web site (www.microsoft.com). Another is
27 "Pocket DOS" of the same functionality, also available at www.microsoft.com.

28

29 **d. Wireless Applications**

30 In another embodiment of the present invention, the invention can be
31 used on a wireless device which enables the user to communicate with a third
32 party data provider using wireless communication methods, such as by analog or
33 digital cellular communication, or other communications frequencies.

34

35 A theme common to most securities prospectuses, and routinely stated
36 in commentaries on the financial markets, is that generally the past performance

1 of a security is no guarantee that it will perform similarly in the future.
2 However, historical analysis of financial information has led to the development
3 of many theories about how the equities market may perform in the future. Some
4 factors include whether there have been major wars, economic depressions,
5 presidential elections. One recent such indicator, termed the "Super Bowl
6 factor", suggests that if the winning team is from the National Conference, the
7 stock market will have an "up" year, and if the winning team is from the American
8 Conference, the stock market will have a "down" year. Using the present
9 invention, an investor can watch the recent trends of a security, and use these
10 trends in conjunction with the investor's knowledge or other parameters to make
11 decisions whether to buy or sell a security, or to take other actions, such as
12 purchase or sale of options or puts, etc. based on the security's recent
13 performance.

14
15 Therefore, although this invention has been described with a certain
16 degree of particularity, it is to be understood that the present disclosure has
17 been made only by way of illustration and that numerous changes in the details
18 of construction and arrangement of parts may be resorted to without departing
19 from the spirit and scope of the invention.